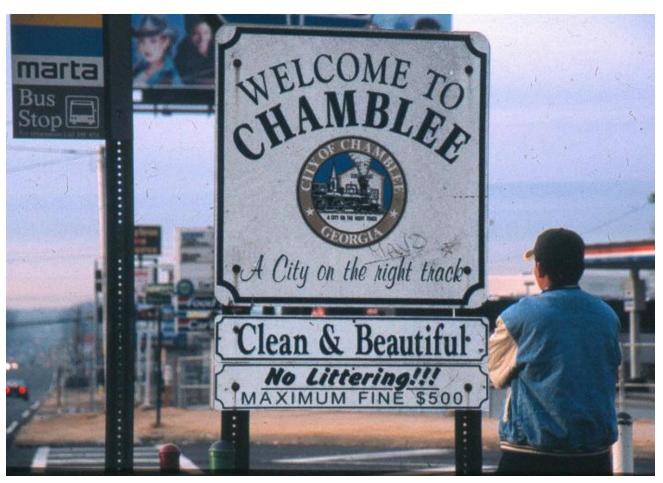
Vacant Land Inventories: Part and Parcel to Revitalization

A Public Service Capstone Report by Jeremy Alexander, Robert Herrig, Cecilia Leal, Keegan Smith



Mary Odem, 2001. http://southernspaces.org/2006/global-lives-local-struggles-latin-american-immigrants-atlanta

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Spring 2015

Table of Contents

	INTRODUCTION	
Pι	URPOSE	3
II.	PROBLEM DEFINITION: CLOSING THE INFORMATION GAP	4
VA	ACANCY AS A BARRIER TO URBAN GROWTH	4
CH	HAMBLEE'S PAST, PRESENT, AND FUTURE DEVELOPMENT	5
RE	EDEVELOPMENT AND VACANT LAND INVENTORIES: THE URBAN POLICY APPLICATION	7
III.	BACKGROUND	8
	ELEVANT LITERATURE	
	Analysis of inventory information	
	Land suitability	
CH	HAMBLEE CONTEXT	10
ST	TAKEHOLDER INTERVIEWS	10
IV.	ANALYTICAL METHOD	12
	RELIMINARY QUALITATIVE ANALYSIS	
	QUANTITATIVE ANALYSIS	
	Calibration	14
V.	DATA COLLECTION	15
	RIMARY DATA	_
	ECONDARY DATA	
VI.	EVALUATION	17
	ESULTS	
	URPOSE 1: THE INDEX	
	OT SPOT Profiles	
	1: Catalina Drive	20
	2: Savoy Road	22
	3: Chamblee-Tucker and Peachtree Blvd	23
	4: Broad Street and Irvindale Drive	24
	5: Clairmont Road and 6th Street	25
Pι	URPOSE 2: BROADER POLICY APPLICABILITY	26
IN	NDIVIDUAL ATTRIBUTE COMPARISONS	26
	Building-to-land value ratio	27
	Occupancy status	28
PR	ROJECT LIMITATIONS	29
	Limitations of analysis	29
	Limitations of data collection	29
VII.	CONCLUSIONS	31
VIII.	BIBLIOGRAPHY	32
IX.	APPENDIX	34

I. INTRODUCTION

Chamblee is a small city located in northeastern DeKalb County, Georgia, approximately twenty minutes from downtown Atlanta. A post-industrial suburb, Chamblee is almost completely built out, therefore all new development must occur on vacant or underutilized parcels. City officials in Chamblee seek development that will help the city become dense and sustainable, and support a diverse population of residents and employers. Although Chamblee has put in place plans to support the type of dense, creative development it desires, Chamblee lacks key information on underutilized parcels.

In January 2015, the City of Chamblee's Downtown Development Authority hired a group of researchers from Georgia State University's Public Service Capstone course to create an updated vacant land inventory that would allow both city officials and potential developers to easily access information about commercial and industrial parcels in Chamblee. In addition, the city requested that researchers compile an index of parcels best suited for redevelopment. Consequently, this report serves two purposes: to detail research methods, data collection, and analysis process undertaken by researchers to arrive at this index, and to consider the design that supports the research methods with regards to broader policy applications.

PURPOSE

The research design in this study served two distinct purposes: to create an index of parcels in Chamblee based on quantitative and qualitative support, and to evaluate the method applied to achieve this index within a larger urban policy context. In order to accomplish these two separate objectives, researchers undertook a three-phased research approach. First, researchers conducted comprehensive background investigations to create the layers of analysis used within the multi-criteria suitability method. Second, researchers, with the aid of the Atlanta Regional Commission, created an updated vacant land inventory, itemizing the status of 1,026 commercial and industrial parcels in Chamblee. Researchers conducted comprehensive background investigations to create the layers of analysis used within the suitability method, which led to the index of parcels best-suited for redevelopment in Chamblee. Finally, researchers evaluated the suitability method for potential policy applications within and without the research area.

II. PROBLEM DEFINITION: CLOSING THE INFORMATION GAP

Vacant parcels and buildings in a nearly built-out urban environment such as Chamblee pose an opportunity for revitalization, but before any such revitalization can be considered, Chamblee must have accurate, current, and comprehensive information on vacant land in the city. Currently, an information gap regarding vacancies exists in Chamblee; meaningful progress towards revitalization depends upon the availability of accurate information. With this in mind, researchers resolved to remedy this information gap by collecting and inventorying data on vacant parcels, buildings, and occupancy details. With an updated vacant land inventory, Chamblee will be in an advantageous position to target specific sites for redevelopment.

The research collection and analysis methods employed in this study, detailed below, allow Chamblee to properly engage with private and public partners to pursue revitalization of targeted geographies in the city. Further, the methods used inform potential applications by actively closing the information gap and supporting geographically specific development initiatives. Any urban municipality will benefit from an inventory of vacant land during its revitalization process. Local development policy should consider the creation and maintenance of such an inventory for use when making decisions regarding development. Additionally, lessons learned from creating such an inventory can inform land-use policy, such as proactive rezoning, and economic development policy, including the application of specific economic development tools and public-private partnerships.¹

VACANCY AS A BARRIER TO URBAN GROWTH

Vacant land or buildings creates a barrier to development by straining the jurisdiction's resources, reducing a neighborhood's quality of life, reducing a neighborhood's redevelopment opportunities, and ultimately decreasing a city's potential for economic and community development.² Vacant land and vacant buildings cause a drain on a city's resources for a number of reasons. Vacant, undeveloped land holds less value than developed property, thus generating less revenue for the city.

For the sake of clarity and convenience, the term vacant land as used in this report indicates both vacant parcels and vacant buildings. Vacant parcels are parcels upon which there have been no permanent improvements. Parks, playgrounds, cemeteries, gardens, parking lots, and lots containing billboards or utility poles are not considered vacant land for the purposes of this study and discussion. The term vacant building indicates a building that is currently completely unoccupied or unutilized, while partially vacant building indicates a multi-unit building where at least one unit is unoccupied.

Vacant buildings create unsafe conditions, as a lack of maintenance creates potential for criminal activity and public hazards, such as illegal dumping, leaking sewage, or fires.³ Vacant buildings require additional public services, such as code enforcement or police and fire rescue, but do not usually contribute to the tax base which funds these resources, particularly if abandoned. Vacant buildings can

¹ The United States Conference of Mayors. (2010). 7. Brownfields Redevelopment: Reclaiming Land, Revitalizing Communities, A Compendium of Best Practices. 5.

² Ibid.

³ Schilling, J. (2001). The Revitalization of Vacant Properties: Where Broken Windows Meet Smart Growth. International City/County Management Association.

become blighted if abandoned or neglected, reducing the quality of life in the surrounding area, diminishing neighbor's property values, and disincentivizing new development in the neighborhood. Vacant parcels or abandoned buildings are neither utilizing the land to its highest and best use nor contributing to the jurisdiction's tax base, further diminishing the potential economic opportunities of the city. Such vacant land is usually privately owned; therefore the local jurisdiction typically has limited power over parcel maintenance or development, particularly when the jurisdiction does not have updated information on land vacancy or condition.

Contemporary cities have an arsenal of economic development tools at their disposal, but without accurate information, such tools cannot be properly deployed. Municipalities, using local, state, or federal funds, can partner with real estate and development companies to target specific sites or neighborhoods for specific types of redevelopment. In order for a municipality to best use these public funds and development tools, a comprehensive inventory of vacant parcels and buildings within the city's borders must be assembled.

Once a city assembles information on vacant land, it can target parcels or block areas for redevelopment, making the best use of public funds. This information-gathering phase is crucial to the stabilization portion of a city's revitalization process. The targeting of specific areas for stabilization supports the following stages in a city's reactive vacant land revitalization cycle: utilization of resources for rehabilitation, property transfer or demolition, and long-term revitalization.⁴

This project aims to assist the City of Chamblee in moving forward in the urban redevelopment cycle by closing the information gap about vacant and underused parcels inside the city limits. By providing the city with this information, researchers hope that Chamblee and its development authority will be able to properly focus planning and economic development efforts and funds. By taking one step back from Chamblee, researchers then endeavor to provide the basis for a simple analytical tool, which will allow similar jurisdictions to analyze geographies for redevelopment suitability, based on their specific needs.

Long Term
Revitalization
& Prevention

The Vacant
Property
Revitalization
Cycle
3.
Property Transfer or Demolition

Resources

Figure 1: The Vacant Property Revitalization Cycle. (Source: Schilling, J. 2001)

CHAMBLEE'S PAST, PRESENT, AND FUTURE DEVELOPMENT

Chamblee encompasses an area of 7.8 miles in north DeKalb County, Georgia, approximately fifteen miles northeast of downtown Atlanta.⁵ Chamblee is a small and historic city in the rapidly developing Atlanta metropolitan region. Chamblee's historical development patterns are different from both those of its adjacent neighbors and from other small cities in the metro region. Chamblee originally developed during America's industrial manufacturing and railroad prime. For this reason, the city currently occupies a

⁴ Ibid.

⁵ The City of Chamblee Comprehensive Plan: A City on the Right Track. (2015, January 2).

different stage of the revitalization and redevelopment cycle than its adjacent neighbors, many of whom were developed in later decades, reflecting their suburban nature.

Chamblee was founded in 1908, and began as a dairy farm community and rail town. Chamblee owes much of its early twentieth century growth to two railroads that intersected in the center of town. The railroads carried passengers, workers, and goods in and out of the Southeast and the Atlanta region, itself a burgeoning logistics and transportation hub at this time. Due to the railroads, the American military transformed much of Chamblee into Camp Gordon during World War I. Camp Gordon was reestablished as a Navy Flight Training Center during World War II. After the Second World War, Chamblee experienced growth in its industrial areas due to the opening of the General Motors plant in neighboring Doraville. Large manufacturing corporations such as Frito-Lay, General Electric, and Kodak built plants along the newly constructed Peachtree Industrial Boulevard. These corporations provided a strong tax base and a source of employment for more than thirty years.

In the 1980s Chamblee began to change dramatically as many of these large manufacturing sites downsized or closed altogether. This caused depletion in the tax base and a loss of population as young workers followed jobs to the rapidly growing northern suburbs. During this time, refugees and immigrants, drawn to the employment potential of metro Atlanta, came to Chamblee for its affordable housing and began repopulating the neighborhoods along Buford Highway.

Today, Chamblee is a diverse and bustling community. However, many underused and vacant properties dot the city's former industrial areas due to the rapid implosion of manufacturing, heavy industry, and railroad freight. The City of Chamblee aspires to evolve into a modern city in the twenty-first century and transform these underused sites into attractive places to live, work, and play. A major focus of the City's economic development initiatives is to increase its tax base and attract new businesses and workers to their community. The City hopes to accomplish this through redevelopment of its vacant and underused industrial and commercial parcels. It is in these areas that Chamblee, through land use and development policy, is cultivating mixed-use, transit, biking, and walking-oriented developments.

City officials in Chamblee created a Downtown Development Authority (DDA) to spur redevelopment of these vacant or underutilized former industrial and commercial properties in the downtown area. Future growth of jobs, population, and tax base in the City of Chamblee depends on the successful redevelopment of vacant or underutilized parcels that make better use of the City's land, reuses or replaces its old buildings, and improves and expands its existing infrastructure. However, the redevelopment process is a risky and costly undertaking. Therefore, the City's efforts will require substantial investment by public officials, community residents, and private developers to attain and redevelop these properties.

Development in Chamblee will require the cooperation of many different players. MARTA, Atlanta's regional transit system, is currently in the planning stages of transit-oriented development around the city's rail station, which connects Chamblee with Buckhead, Hartsfield-Jackson International Airport, Midtown, and Downtown Atlanta. Chamblee contains a small regional airport, the DeKalb-Peachtree airport, which primarily serves private and corporate clients. The federal government is a major employer in Chamblee, due to the presence of Centers for Disease Control and Prevention and Internal Revenue Service offices. DeKalb County is a player in the development game, as it has the capacity to

incentivize development through the county's development authority. The Atlanta Regional Commission (ARC), the region's metropolitan planning organization, is a partner in this study. Of course, real estate professionals and private developers are crucial elements in the development process.

The cities adjacent to Chamblee and their current and future development are major considerations in this study. The cities of Brookhaven, Doraville, and Dunwoody are all younger, larger, and more affluent than Chamblee. Brookhaven and Dunwoody, in particular, have major employment centers and much higher median household incomes than Chamblee. These cities are all undergoing large booms in development at this time, placing their growth at a distinctly different stage in the urban redevelopment cycle (please refer to Figure 1).

ARC completed Chamblee's first vacant land inventory in 2011. Since then, the city has nearly doubled in size following two annexations; the population has grown fifty percent, from 9,892 in 2010 to 15,948 in 2013.⁷⁸ While the city made use of the previous vacant land inventory, that database is now out of date and incomplete. Creation of a new updated inventory will close the information gap that is hampering Chamblee's ability to properly leverage its development efforts in specific areas.

REDEVELOPMENT AND VACANT LAND INVENTORIES: THE URBAN POLICY APPLICATION

The problem of vacant properties is ubiquitous in urban centers and metropolitan areas. It is a problem intrinsic to the ebb and flow of development, market forces, and the natural aging of the built environment. When investment occurs in one area, planners and developers build this area, taking their resources away from the built environment of another area. These areas then age and become rundown. Then, as the new buildings age, the oldest ones decrease in value and thus incentivize developers to reinvest again. New construction has typically occurred in green, undeveloped land, appealing to the ethos of suburbanization, supporting the aesthetics and ideals of the American dream: each household with a manicured fenced-in yard and room for growth. The cycle will repeat over and over, as redevelopment seeks to fill a vacuum wherever one exists. 9,10

Today, urbanists are not alone in recognizing that this method of development is both unsustainable and unappealing to new generations. Cities that are not on the periphery of larger metropolitan areas do not have the space to develop virgin or agricultural land. Cities across America are in different stages of realization that in order to pursue and stabilize growth that is equitable, environmentally sound, and economically positive, the density of new development must be higher than the status quo, and it must support certain amenities and alternative methods of transportation. In order to achieve these goals, cities must first assess their present state of development by developing vacant land inventories and methods for redevelopment prioritization.

⁶ The United States Census Bureau. "American Community Survey 5 Year Summary 2009-2013." The United States Department of Commerce.

⁷ Ibid.

⁸ Ibid.

⁹ Schilling, J. (2001). The Revitalization of Vacant Properties: Where Broken Windows Meet Smart Growth. International City/County Management Association.

¹⁰ Goldstein, J., Jensen, M., & Reiskin, E. (2001). Urban Vacant Land Redevelopment: Challenges and Progress. Cambridge, MA: Lincoln Institute of Land Policy.

III. BACKGROUND

In order to thoroughly assess and analyze parcels well suited for redevelopment in the Chamblee context, the vacant land issue must be understood from three different perspectives:

- The general problem of land vacancy and strategies for solving this problem.
- The application of strategies and best practices to Chamblee.
- The knowledge and experience of professional practitioners in the City of Chamblee.

Mirroring these three perspectives, researchers conducted a three-tiered approach to study the vacant land problem in Chamblee: conducting research of relevant literature, reviewing city plans and goals, and interviewing professionals with a variety of contextual knowledge of the City of Chamblee and its economy.

RELEVANT LITERATURE

The literature reviewed fell into two distinct categories: best practices and the use of inventories of vacant commercial and industrial properties, and the application of inventory data for redevelopment prioritization. Many cities across the U.S. use vacant land inventories which provide information to city officials and developers to track patterns of vacancy, provide data for code enforcement purposes, or perform cost-benefit analyses of redeveloping specific properties. The type of information gathered for these inventories varies from city to city depending on the regulatory frameworks, real estate markets, and distinct regional socioeconomic dynamics. The information desired, the existing policies for vacant land use, and the financial resources vary in different cities. Therefore, cities approach such inventories differently. However, all data discovery and information-gathering for vacant land inventories constitute the initial phase of the property revitalization cycle. Without the information inventories provide, cities cannot begin to track existing vacant properties, target geographic areas to stabilize, and determine the best processes for redevelopment.

Inventories have provided a wealth of information for cities such as St. Louis, Portland, Indianapolis, and York, Pennsylvania. The inventories were crucial for each city's region-specific strategy for combatting vacancy because they provide a comprehensive measure of the scope of the vacancy problem. Application of a vacant land inventory allowed St. Louis to better target properties breaking city ordinances and charge appropriate fees on property owners, incentivizing proper maintenance and occupancy. York, Pennsylvania managed to introduce policies that better used city finances and resources following use of the vacant land inventory. Portland, famous for its urban growth boundary established in 1979, uses a vacant land inventory to prevent sprawling developments and focus infill development within

¹¹ The United States Conference of Mayors. (2006). Combating Problems of Vacant and Abandoned Properties: Best Practices in 27 Cities.

¹² Emerson, R. (1942). Problems of Vacant Land in the In-Town Area. MIT Press.

¹³ Schilling, J. (2001). The Revitalization of Vacant Properties: Where Broken Windows Meet Smart Growth. International City/County Management Association.

¹⁴ Ibid.

¹⁵ The United States Conference of Mayors. (2006). Combating Problems of Vacant and Abandoned Properties: Best Practices in 27 Cities.

the city. Inventories of vacant properties in Portland target sites for redevelopment in a highly built-out urban center.¹⁶

Analysis of inventory information

Once data is gathered, city officials must decide how the information will be used. There are many methods for determining parcels appropriate for prioritization. Cities may decide to prioritize parcels based on a singular criterion, such as the ratio between improvement and land value, the location of targeted land in relation to accessibility to public transit or corridors, or projected population growth. Officials may also use a combination of several of these indicators, also known as logical combination or land suitability analysis. ^{17,18,19} The information gathered by these methods generate an index of parcels, or clusters of parcels, of highest priority for redevelopment. In this study, researchers adapted a prioritization method based on land suitability analysis and logical combination as discussed by Chapin and Kaiser (1995) and Steiner (2008).

Land suitability

Land suitability can be defined as the fitness of a parcel for a defined use.²⁰ The analysis of land suitability is thus the process of determining the fitness, or the appropriateness, of a parcel of land for a specified use. In the case of this research, researchers sought a method of determining the fitness of vacant commercial and industrial properties for redevelopment in the context of Chamblee. This process involves mapping frequencies of specific criteria based on the city's regulatory framework, future development goals, the built environment, and existing conditions and constraints.

Finally, logical combination involves using quantitative rules of combination to synthesize different data into a single suitability index. Different logical combination methods can be derived depending on the relative importance of factors and attributes, the complexity of the analysis required, and the desired distribution of results.²¹ However, methods typically involve assigning numerical values, or scores, to possible values of an attribute, then weighting and combining these scores to produce a total suitability score.

¹⁶ Goldstein, J., Jensen, M., & Reiskin, E. (2001). Urban Vacant Land Redevelopment: Challenges and Progress. Cambridge, MA: Lincoln Institute of Land Policy.

¹⁷ Moore, T., & Meck, S. (2006). An Economic Development Toolbox: Strategies and Methods. Chicago, IL: American Planning Association.

¹⁸ Hopkins, L. (1997). Methods for Generating Land Suitability Maps: A Comparative Evaluation. Journal of the American Institute of Planners, 43(4), 386-400.

¹⁹ Steiner, F. (2008). Chapter 5 Suitability Analysis. In The Living Landscape An Ecological Approach to Landscape Planning (2nd ed.). Washington, DC: Island Press.

²⁰ Ibid.

²¹ Chapin, F., Kaiser, E., & Godshalk, D. (1995). Suitability Analysis. In Urban land use planning (4th ed.). University of Illinois Press.

CHAMBLEE CONTEXT

When determining the method of prioritizing commercial and industrial parcels for redevelopment, researchers considered the City of Chamblee's future development goals. Researchers completed a thorough review of the city's previous land use planning initiatives. Per state mandate, Chamblee has a Comprehensive Plan, which focuses on five primary goals: creating a sense of community, establishing a business-friendly climate, promoting a healthy and safe living environment, developing and maintaining strong multi-modal transportation connections, and providing quality government service through partnership and cooperation. The comprehensive plan also discusses the city's redevelopment priority areas, which informed the researchers' target areas for prioritization, allowing for consistency between this study and the city's comprehensive plan.

A major goal of the Livable Centers Initiative (LCI) study is to create a vibrant City Center. The City of Chamblee aims to target infill, mixed-use, walkable development strategies to create a unique destination for its residents and businesses. The location of the Chamblee MARTA station is seen as a major asset for future development and sustainability. Both the comprehensive plan and the LCI study support a transit-oriented lifestyle with housing, services, and employment near MARTA. The comprehensive plan provided the Future Development Character Area boundaries researchers used in the inventory application. Gary Cornell, Chamblee's development director, and other City of Chamblee officials and professionals touted the goals of these plans throughout research. Researchers considered the boundaries of the character areas discussed in the comprehensive plan when targeting areas for data collection.

STAKEHOLDER INTERVIEWS

Finally, to further understand the development priorities and initiatives undertaken in the greater region around Chamblee, researchers interviewed eleven planning, economic development professionals from municipalities adjacent to Chamblee, ARC planners, and private sector developers. (Please refer to appendix for further interview information.) The City of Chamblee is small relative to its neighbors, and has a lower median household income than the two cities to the west—Brookhaven and Dunwoody. Although they may compete for commercial, industrial, and residential development, it is also in the best interest of all parties to cooperate on certain shared initiatives, such as the shared linear park at North Fork Peachtree Creek, and the eventual spillover from the major mixed-use film studio redevelopment of the GM Plant in Doraville, which was announced in April 2015.

The overall emphasis from planning and economic development professionals was similar to that of professionals from the City of Chamblee—they are witnessing increased interest in their boundaries for infill development and redevelopment. These professionals discussed the factors important for consideration when targeting sites for redevelopment: size, location, improvement value (the ratio of building value to land value), and vacancy. Players in the private sector, such as developers, construction professionals, and commercial real estate brokers, state the major role of financial incentives. However,

²² The City of Chamblee Comprehensive Plan: A City on the Right Track. (2015, January 2).

²³ Kimley-Horn and Associates, INC. (2014, February). 10-Year Update for the City of Chamblee Town Center Livable Centers Initiative. Retrieved January 15, 2015. Starling, M. (2015, February).

they too desire building mixed-use, walkable developments in a residentially dense area, because this is the type of development that will generate profits.

From all of the sources discussed above, researchers developed the data collection criteria for the vacant land inventory tool, a list of target areas used to focus the inventory of commercial and industrial parcels, and a method of prioritizing sites based on inventoried data to recommend revitalization strategies for the future.

IV. ANALYTICAL METHOD

Parcel redevelopment suitability analysis consisted of two methods of research. Based on the literature review, Chamblee contextual research, and interviews with stakeholders, researchers chose to perform a qualitative selection of target areas within Chamblee and a quantitative logical combination of parcel attributes resulting in priority scores. Researchers collected data and performed quantitative analysis in specific target areas due to time constraints on the study. Following the data collection, researchers employed a logical combination method, which was chosen for quantitative analysis due to the simplicity with which it can synthesize large and diverse datasets into a single score.

PRELIMINARY QUALITATIVE ANALYSIS

Researchers used qualitative and contextual knowledge gained from background research to select target areas for primary data collection. These attributes reflect the desired path of Chamblee's development as discussed by city officials and published plans: the desire to support development that is dense, walkable, supportive of alternative transportation, and supportive of job growth. Additionally, researchers chose specific attributes that contribute to the city and development authority's leverage in the application for and use of certain economic development tools. These attributes include:

- Proximity to major transportation arteries
- Proximity to transit stations
- Proximity to current employment centers
- Proximity to planned developments
- Proximity to Chamblee's priority areas
- Perceived level of vacancy
- Perceived level of blight

With these attributes in mind, along with guidance from Chamblee officials, other stakeholders, and current and future city initiatives, researchers selected and ranked target areas for primary data collection. These target areas correspond to the numbered areas in Figure 2. In order of highest to lowest priority, the selected target areas were:

- GM Village (4)
- City Center (6)
- Mid City (8)

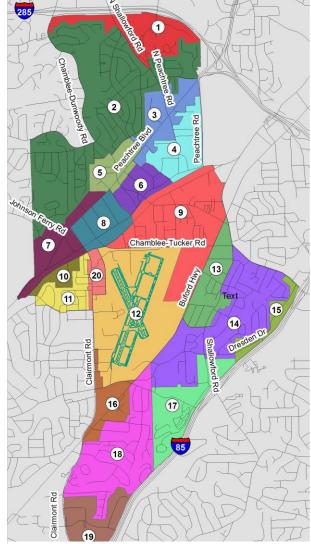


Figure 2: Chamblee Future Development Map (Source: Chamblee 2015 Comprehensive Plan)

- Central Gateway (5)
- Perimeter Commercial Mix (1)
- International Village (9)
- Clairemont Corridor (20)

QUANTITATIVE ANALYSIS

For the second level of analysis, researchers adapted a logical combination method of parcel suitability analysis from Urban Land Use Planning, 4th Edition, by Chapin, Godshalk, and Kaiser. This method involves combining parcel attribute data to determine a single numeric score for each parcel. This score indicates how suitable a parcel is for redevelopment.

Table 1: Parcel Attributes for Quantitative Suitability Analysis (Source: Authors)

Attribute	Values	Scores	Weight	Data Source
	Lowest Quintile	5		
	2nd Lowest Quintile	3		
Building / Land Value Ratio*	Middle Quintile	2	3	DeKalb County Tax Parcel Data
Lana value Ratio	2nd Highest Quintile	1		
	Highest Quintile	0		
	Vacant Parcel	5		
	Vacant Building	3	3	Field Survey
Occupancy	Partially Occupied Building	1		
	Occupied Building	0		
	Highest Quintile	5	2	DeKalb County Tax Parcel Data, GIS
	2nd Highest Quintile	3		
Parcel Area	Middle Quintile	2		
	2nd Lowest Quintile	1		
	Lowest Quintile	0		
	< 0.25 mi	5		DeKalb County
Proximity to MARTA	0.25 - 0.5 mi	3	1	Tax Parcel Data, GIS
	> 0.5 mi	0		
	Dilapidated	5		Field Survey
Blight*	Deteriorating	3	1	
	Adequate	0		

^{*}Vacant parcels receive the mean score of parcels with buildings

To calculate each parcel's score, first each relevant attribute must be assigned possible numeric scores. For attributes with discrete values, each possible value is paired with a possible score. For attributes with continuous values, discrete ranges must first be selected, and then each range is paired with a possible

score. All attributes must have the same range of possible scores to prevent unintended weighting. Attributes are then assigned numeric weights according to their importance to suitability. A parcel's total score is calculated by determining its score for each attribute, multiplying each of those scores by each attribute's respective weight, then summing the weighted scores. This total score represents both a parcel's attributes and the relative importance of those attributes. Table 1 lists the parcel attributes chosen for quantitative analysis. Possible values, corresponding scores, weights, and data sources are also given for each attribute.

Calibration

In order to confirm that the quantitative method's results were grounded in qualitative and intuitive judgments, the method was calibrated against specific parcels. Researchers selected ten parcels for which redevelopment was either unequivocally desirable or undesirable (five of each) and used them in the calibration. These parcels were scored and analysis parameters (scores and weights) were adjusted until all undesirable parcels fell in the bottom quintile of all total scores, while all desirable parcels fell in the top quintile.

V. DATA COLLECTION

PRIMARY DATA

Based on a collaborative process between the ARC and professionals from the City of Chamblee DDA, researchers helped develop a comprehensive inventory tool for vacant commercial and industrial properties. The tool, which was first created by ARC in 2012, was redesigned according to researcher-selected criteria to collect vacancy data at the individual parcel level in the ESRI ArcGIS app. After initial research on vacant land inventory best practices from across the country and meetings with Gary Cornell and Adam Causey, the City of Chamblee Director of Development and Economic Development Manager, researchers selected three data items for collection by the tool: the presence of a building, building occupancy, and the condition of a building. These criteria were sent to ARC's Research and Analytics division to update the inventory instrument app, which then became the 2015 City of Chamblee Commercial Parcel Inventory Application.

The newly redesigned inventory instrument provided simple data entry capabilities for the selected criteria into an ArcGIS web platform, which was accessible through three cellular enabled iPads provided to the researchers by the City of Chamblee. The app displays a basic geographic map of the City of Chamblee, showing roads, parks, streams, and railroads. Within the City boundary, all commercial and industrial parcels were editable for data collection. For each editable parcel, fields were pre-populated from Geographic Information Systems (GIS) data provided by the DeKalb County Tax Assessor's Office, including the parcel's underlying zoning classification and the parcel identification number. A final field was pre-populated to display its Future Development Character Area taken from the City of Chamblee's 2015 comprehensive plan.

Researchers then conducted on site visual surveys using three iPads to collect information and update the City of Chamblee parcel inventory database in real-time on ARC's server. Researchers collected data on 1160 parcels in five of Chamblee's Future Development Character Areas. Data collection began in the Future Development Character Areas deemed most important following a thorough review of City plans and meetings with the Director of Development Gary Cornell. After researchers inventoried all commercial and industrial parcels within the highest priority area, they continued data entry in the next highest priority area. Because the app has Global Positioning System (GPS) software, researchers could track their location when conducting field surveys to correctly update the land inventory.

Researchers visited each parcel, and then selected the appropriate parcel using the app. Once the parcel was selected, researchers edited each of three fields as follows:

- 1. **Building or Empty Vacant Lot?** Researchers selected whether there was the presence of a building or an empty lot.
- 2. **Building Occupancy** If there was a building present, researchers whether the building was vacant, partially vacant, or occupied.
- 3. **Condition of Building** Researchers selected whether the building present was dilapidated, deteriorating, or adequate. If there was not a building present, researchers entered "n/a."

Field 1 indicated the presence of any development on a parcel: whether the parcel was an empty lot or a building. The data collection for Field 1 correlated with a high level of certainty due to the ease of visual confirmation for the presence of a building or an empty lot.

Field 2 (edited only if a building was present) indicated the vacancy status of the building. Field 2 correlated with a lower level of certainty during data collection because the vacancy of a building cannot always be determined by a visual confirmation. However, researchers used visual indicators, such as the absence of any activity or furnishings, or the presence of a "for sale" or "for lease" sign, to establish complete or partial vacancy. Additionally, researchers assessed the entire perimeter of the building to look for clues of building use and occupancy.

Field 3 indicated the presence of blight on the property. Blight conditions can be difficult to distinguish since they fall on a spectrum. However, researchers were consistent in their assessment of each parcel, using the definitions of blight as discussed by Chapin and Kaiser (1979). The simple three-class system proposed by these authors assesses the structural condition of a building and can be applied without gaining entry to the building. Researchers distinguished between three possible blight scores: adequate condition (indicating a livable construction, with no defects or small defects correctable by routine maintenance); deteriorating condition (indicating repair is necessary if unit is to provide safe shelter); or dilapidated condition (indicating defects serious enough to create a major safety hazard).²⁴ This system of rating building structures provided a condition and a description of that condition so to make simple and easy conducting field surveys, and ought to be used by the City of Chamblee when completing the inventory in the future.

After researchers edited all fields of an individual parcel, they captured a ground-level photograph of the property that instantly and automatically attached to the parcel's data online. Once all fields were completed, the editable parcel changed color on the map to show all data has been captured and updated in real-time to the online inventory. The data collected was combined and presented in an interactive map and database, which displayed all collected data for each parcel in the City of Chamblee when selected.

SECONDARY DATA

Other data, including tax parcel data and building value information was then uploaded into the inventory database. Researchers downloaded this data into a form that could be manipulated in Excel and GIS. Researchers collected and calculated further data: building value to land value ratio, parcel size (in acres), and proximity to transit. The ratio of building value to land value was calculated using information from the county's tax parcel digest. Parcel size was calculated using polygon areas in ArcGIS. Proximity to transit was calculated by creating buffer zones in ArcGIS, using the Chamblee MARTA station as the measurable point.

Vacant Land Inventories: Part and Parcel to Revitalization

²⁴ Chapin, F., & Kaiser, E. (1979). *The Use of Land, Developed and Developing Areas*. <u>Urban Land Use Planning</u>. 3rd ed. University of Illinois Press.

VI. EVALUATION

RESULTS

Following fieldwork, data collection, data cleanup, and calibration, researchers analyzed the data. Researchers collected data on 1160 parcels, and following the data cleanup process, 1026 parcels with complete data were suitable for analysis. After completing sensitivity analyses and determining appropriate weights for each criteria, researchers used the multi-criteria suitability analysis method described to create single scores for each parcel. Figure 3, below, displays the spatial distribution of parcel suitability scores, divided into quintiles.

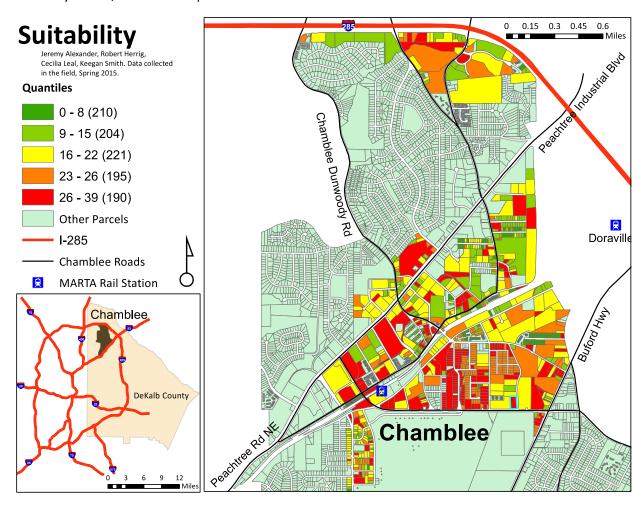


Figure 3: Redevelopment Suitability Scores for Surveyed Parcels (Source: Authors)

Scores ranged from 0-39, with a mean of 17.9, a median of 19, and a standard deviation of 8.9. A total of forty parcels fell in the top 20 percent of scores (3.9 percent). 190 parcels fell into the top quintile. The score distribution showed many isolated parcels ranking best-suited for redevelopment. Parcels in clusters are better suited for commercial redevelopment than small, isolated parcels, thus researchers decided to take a spatial approach at analyzing the data.

Purpose 1: The Index

In order to better determine and rank multiple geographic areas best suited for redevelopment based on the suitability scores, researchers generated a Hot Spot Analysis map using ArcGIS. Researchers chose this method of further analysis based on information gathered during qualitative and background research, particularly during the stakeholder interviews: developers are more inclined to develop large-scale commercial projects on larger parcels, or on several adjacent parcels. Therefore, proximity to parcels which are well-suited for redevelopment is itself a characteristic to be considered when determining a parcel's redevelopment suitability.

The Hot Spot Analysis tool identifies statistically significant spatial clusters of high and low values, creating "hot" and "cold" zones based on a parcel's suitability score and proximity to other parcels with high suitability scores. Using the data generated by this tool (Getis-Ord Gi*, Spatial Statistics), researchers created an index of geographic clusters which contained both high suitability scores and proximity to other high-scoring parcels. The tool generates a z-score and p-value for each parcel, calculated using each parcel's score and the sample statistics. A high z-score and small p-value indicates a parcel within a cluster of high-scoring parcels, while a low z-score and a small p-value indicates a parcel within a cluster of low-scoring parcels. Z-scores approaching zero indicate no spatial clustering.²⁵

Researchers used an analysis of z-scores to identify the top five "hot" high-scoring geographic clusters. Interestingly, the top five clusters generated by this tool were each smaller geographic areas contained in the five Future Development Character Areas chosen for data collection. The suitability analysis, therefore, produced an index (ranking) of smaller, concentrated cluster of parcels within each character area.

Table 2: Redevelopment Suitability Hot Spot Index (Source: Authors)

Rank	Location	Area	"Hot" Parcels	Total Acreage
1	Catalina Drive	International Village	91	39.622
2	Savoy Road	Perimeter Commercial Mix	5	15.051
3	Chamblee-Tucker and Peachtree Blvd.	Mid-City	7	15.716
4	Irvindale Drive (Downtown Chamblee)	City Center	4	4.002
5	Clairmont Road and 6th Street	Clairmont Corridor	3	1.937

Vacant Land Inventories: Part and Parcel to Revitalization

²⁵ ArcGIS Help 10.1: Hot Spot Analysis. Retrieved April 25, 2015, from http://resources.arcgis.com/en/help/main/10.1/index.html#//005p00000010000000

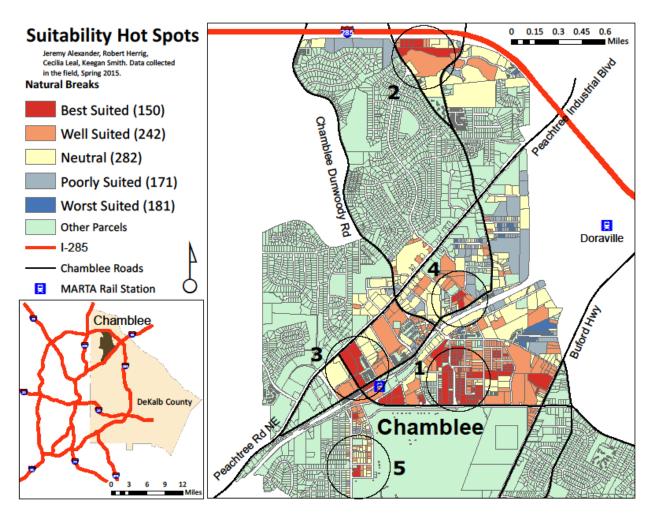


Figure 4: Redevelopment Suitability Hot Spots in Chamblee (Source: Authors)

HOT SPOT PROFILES

1: Catalina Drive

Table 3: Catalina Drive Profile (Source: Authors)

Cluster	Catalina Drive
Development Character Area	International Village
Parcels	91
Occupancy Status	90 vacant, 1 occupied
Mean Improvement Value Ratio	0.99
Total Area (acres)	39.62
Mean Parcel Size (acres)	0.40
Distance to Marta?	58% .255 miles; 42% >.5 miles
Zoning	42 commercial, 39 exempt, 12 unknown, 5 residential
Major Owners	NCP Fund Holdings, Inc.; Atlanta Chinatown Investments; PDK Investment Group, LLC; DeKalb County, GDOT

The parcels on Catalina Drive achieved higher suitability scores than those in any other geographic area. When the hot spot analysis was performed, Catalina Drive was the first area to be highlighted. This area includes approximately 40 acres along the east and west sides of Catalina Drive between Chamblee-Tucker and Chamblee-Dunwoody Roads, immediately north of PDK Airport. This region is inside the International Village character area, and has not been included in previous LCI reports, although it is adjacent to the Village Commercial district proposed by the 2013 LCI study. The area is the largest of all targeted geographies: the cluster of "hot" parcels consists of 91 parcels. The major reason why this area tops the list of areas suited for redevelopment in Chamblee is simple: 90 of the 91 acres are vacant, and the geographic area is relatively large.

Catalina Drive is a victim of the recession; in 2005, the area was planned as a 540,000 square foot mixed-use development named International Village. The development was slated to include a hotel and conference center, along with retail and office space, with spaces for international offices and consulates. After the developer filed for bankruptcy in 2008, the project stalled.²⁶ Seven years later, many of the parcels are still owned by the original developer, PDK Investment Group, LLC, along with other holding groups, DeKalb County, and the Georgia Department of Transportation.

Within this geographic area lie two creeks, of environmental concern. The area is easily accessible to both Chamblee-Tucker and Chamblee-Dunwoody Roads, as well as the Chamblee MARTA station and of course, PDK Airport. Nearby, the Interactive College of Technology is expanding the campus. Catalina Drive is located three miles from the enormous planned development at the former General Motors Plant in Doraville. The proposed development site is 265 acres and will include film studios, residential and commercial space, as well as parks and trails. Due to the proximity to the airport, MARTA, and the planned developments nearby, this area offers many interesting opportunities for redevelopment.

²⁶ http://www.bizjournals.com/atlanta/stories/2008/08/18/story11.html

Recommendations:

Chamblee's 2015 Comprehensive Plan makes certain recommendations for International Village: retail

and office space near the Interactive College of Technology and PDK Airport, construction of pedestrian and bicycle infrastructure to support alternative transportation and last mile connection between the airport, commercial centers, and MARTA, and support for the ethnic diversity that exists in the area by supporting development that includes and embraces international cultures. Researchers support these recommendations and recommend the advancement of the former International Village development in some manner, as



Figure 5: Vacant Lots Lining Catalina Drive (Source: Authors)

well as an initiation of pedestrian and bicycle infrastructure in the general character area.

Due to the total area of vacant land and the presence of two creeks, as well as potential building constraints due to airport activity, researchers also recommend a "town green" area on Savoy Road. This could be in the form of a recreational sports complex, a community garden, or park. Such a recreational area could fulfill either interim or permanent purposes in this area. Savoy Road may also be attractive to film studio professionals, since it is a large area with access to a private airport and two major roads. However, because the site consists of 90 vacant parcels and sits at the heart of the City of Chamblee, researchers recommend this site be redeveloped with the entire Chamblee community in mind.

2: Savoy Road

Table 4: Savoy Road Profile (Source: Authors)

Cluster	Savoy Road
Character Area	Perimeter Commercial Mix
Parcels	5
Occupancy Status	3 vacant, 2 occupied
Mean Improvement Value Ratio	0.38
Total Area (acres)	15.05
Mean Parcel Size (acres)	3.01
Distance to Marta?	>.5 miles
Zoning	4 commercial, 1 exempt
Major Owners	ASL Limited Partners; DeKalb County

Chamblee has not previously studied Savoy Road, although planners and officials express interest in future development in the area. Savoy Road runs parallel to I-285 on Chamblee's northern border, creating an almost impermeable border between Chamblee and the city of Dunwoody. Hotels and apartments lie to the area's west, supporting employment and retail centers at Perimeter Center in Dunwoody and Northside Hospital in Atlanta. Proximity to these employment centers, easy accessibility, and low improvement value ratios indicate that the area is prime for redevelopment.



Figure 6: Savoy Road (Source: Google Maps, April 2015)

Within the "hot" area generated by the analysis, three of five parcels are vacant, and the area totals 15 acres. Nancy Creek runs through this area, and DeKalb County is a major property owner, particularly along I-285. The improvement value ratio is low because the land in this area is not being put to its best and highest use: currently, the rest of Savoy Road is home to gas stations, fast food restaurants, shuttered restaurants, and package stores.

Recommendations

The area along Savoy Road has massive redevelopment potential due to its proximity to major employment and retail centers as well as its accessibility to I-285. Additionally, the presence of Nancy Creek provides a potential recreational or greenspace opportunity. The city envisions this area as a commercial mix, and the authors support this vision. The area could support commercial development that incorporates the environmental features.

3: Chamblee-Tucker and Peachtree Blvd.

Table 5: Chamblee-Tucker Road and Peachtree Blvd. Profile (Source: Authors)

Cluster	Chamblee-Tucker Road and Peachtree Blvd.
Character Area	Mid-City
Parcels	7
Occupancy Status	6 vacant, 1 occupied
Mean Improvement Value Ratio	0.78
Total Area (acres)	15.72
Mean Parcel Size (acres)	2.25
Distance to Marta?	<.25 miles
Zoning	2 commercial, 6 exempt
Major Owner	MARTA



Figure 7: Parking Lot at Chamblee-Tucker Road and Peachtree Boulevard (Source: Authors)

This cluster of parcels lies along Chamblee-Tucker Road between Peachtree Road and Peachtree Boulevard. This region is in Chamblee's Mid-City character area, directly west of the Chamblee MARTA station. These parcels are mostly larger in size, although the area itself is smaller than the cluster at Catalina Drive. Many of these parcels are adjacent to the Wal-Mart SuperCenter, as well as several car dealerships along Peachtree Boulevard.

Six of the seven parcels in the cluster were coded as 'vacant,' and they mostly house parking lots. The occupied parcel is a car dealership.

MARTA owns the majority of the lots in this cluster. Two of the MARTA-owned parcels, currently parking lots, are part of MARTA's Chamblee TOD initiative, and will be redeveloped into mixed-use transit oriented development in the coming years.

Recommendations

This area was included in both LCI studies, which proposed redevelopment of the area into dense commercial use. As noted by the approaching MARTA transit oriented development, this area has great potential to fulfill many of Chamblee's future development characteristics if redevelopment is done thoughtfully. Due to the proximity to MARTA, parcels may be developed into dense, mixed-use or commercial districts. Chamblee will want to collaboratively engage with MARTA and MARTA-chosen developers in their redevelopment plans, and to pursue the type of development that will thrive adjacent to such transit oriented development.

4: Broad Street and Irvindale Drive

Table 6: Broad Street and Irvindale Drive Profile (Source: Authors)

Cluster	Broad Street and Irvindale Drive
Character Area	City Center
Parcels	4
Occupancy Status	4 vacant
Mean Improvement Value Ratio	0
Total Area (acres)	4
Mean Parcel Size (acres)	1
Distance to Marta?	>.5 miles
Zoning	2 commercial, 2 industrial
Major Owner	Peachtree Broad LLC

This cluster consists of four parcels along Irvindale Drive, at Broad Street and Peachtree Road. This area is part of Chamblee's City Center character area, and the parcels are within the city's Main Street Program as awarded and administered by Georgia's Department of Community Affairs. This area has also been

included in the two LCI studies. Chamblee's comprehensive plan and LCI recommendations both include integration of historic architecture and pedestrian-friendly urban design in this area, reflecting the desire for a dense, walkable downtown. Much effort has already been made to pursue these desired characteristics in this general area, but the "hot spot" along Irvindale Drive suggests that this block is particularly well suited for redevelopment due to the clustering of vacant parcels with low improvement value ratios.



Figure 8: Vacant Lot at Irvindale Drive and Broad Street (Source: Authors)

Recommendations

This area is poised to be a vital piece of Chamblee's downtown. It lays across the street from Chamblee City Hall, adjacent to Chamblee's U.S. Post Office, and within the Chamblee Antique District, a tourist attraction. It is a major priority of Chamblee officials and planning professionals, as it lies within downtown and the Main Street district. Chamblee may target these sites for dense, mixed-use development in order to support its vision of a dense, historic downtown area. Researchers also see potential for a "town green" here. Again, the idea of an interim greenspace that attracts tourists walking around the Antique District or visitors to Chamblee City Hall would be a good use of the space until major redevelopment plans are made.

5: Clairmont Road and 6th Street

Table 7: Clairmont Road and 6th Street Profile (Source: Authors)

Cluster	Clairmont Road and 6 th Street
Character Area	Clairmont Corridor
Parcels	3
Occupancy Status	2 vacant buildings, 1 vacant lot
Mean Improvement Value Ratio	0.17
Blight	Deteriorating
Total Area (acres)	1.94
Mean Parcel Size (acres)	0.65
Distance to Marta?	>.5 miles
Zoning	2 commercial, 1 residential



Figure 9: Vacant Building and Lot at Clairmont Road and 6th Street (Source: Authors)

This cluster of parcels lies at the intersection of Clairmont Road and 6th Street, in the Clairmont Corridor character area. It is directly northwest of the PDK Airport. This area was targeted in the hot spot analysis due to the cluster of deteriorating vacant buildings and a vacant lot. The area is small and consists of only three parcels, which are owned by two separate individuals. The cluster is in a residential region, however, the zoning allows for a commercial/residential mix, meaning small businesses such as travel agencies, insurance companies, and auto shops are interspersed with single family houses in this neighborhood.

Recommendations

Researchers see potential for attracting small business owners to this cluster due to its commercial/residential zoning. These parcels are owned by private landowners and may be more difficult to transfer and revitalize than ones owned by businesses. Therefore, researchers recommend communication and coordination with the landowners to form a strategy for smaller-scale, fiscally resourceful improvements to the land. Improvements could include simple beautification by ordinance enforcement, way-finding or landmark signage welcoming travelers to the City of Chamblee, or a community garden or learning center, as it is close to the Chamblee Public Library.

Purpose 2: Broader Policy Applicability

In today's development climate in the metropolitan Atlanta area, cities and municipalities compete for development. Municipalities must have thorough information on their local development trajectories, in order to properly use public funds to attract specific types of development, as well as information on geographies best suited for redevelopment. The method employed in this study is a low-cost manner of creating and updating such an inventory: it required three tablets, several dozen hours of graduate student field labor, and the cooperation of the regional planning commission.

The multi-criteria suitability analysis used in this study creates value because it creates an index of suitable parcels. This index closes the information gap: informing city officials on the location and characteristics of underutilized parcels. It also provides key information on parcels with potential for improvement and ranks them according to the combination of criteria so those more susceptible (other word?) to redevelopment have the highest scores. Cities can use this information to then create unique strategies for revitalization of underutilized properties within their boundaries.

This index can target city resources towards property transfers, incentivize redevelopment on specific parcels using tax abatements or credits, specify areas suited for economic development assistance, or identify multi-jurisdictional properties, such as greenspace and trail developments. The criteria identifies suitable land for general commercial redevelopment, but cities can alter this method of analysis to include more or less criteria, targeting more specific or less specific indicators of suitability. For instance, if a city has access to funding for environmental protection or clean up, criteria about the environmental constraints and conditions of parcels may be added. Alternatively, if a city desires to implement federal funds that necessitate the finding of blight, criteria regarding blight may be included.

The key indication that this specific combination of criteria was useful, and that it could be applied to other cities, is that the analysis identified parcels suited for redevelopment in each of the five distinct character areas from which data was collected. The fact that this method did not just highlight one specific area over all the rest, suggests the index is not influenced by one variable. Therefore, cities could use this method of analysis to leverage the policy tools available to them for stabilizing, revitalizing, and preventing vacant properties.

INDIVIDUAL ATTRIBUTE COMPARISONS

While the linear combination method was effective for quantitatively prioritizing parcels, it is not the simplest method for doing so. Instead, parcels could be indexed using a single important attribute, such as occupancy or the building-to-land value ratio. To confirm that linear combination is worth its additional complexity, the following single-attribute maps are examined and compared with the suitability score map (Figure 3).

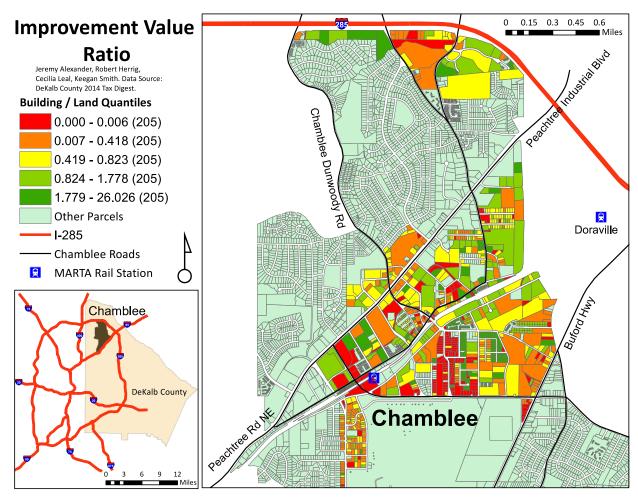


Figure 10: Building-to-Land Value Ratios for Surveyed Parcels (Source: Authors)

Figure 10 shows the building-to-land value ratios of surveyed parcels, divided into quintiles. The lowest building-to-land value ratios appear red, while the highest appear green. When compared to the suitability score quintiles of Figure 3, there are noticeable similarities and differences. Most parcels appearing red in Figure 10 also appear red in Figure 3, showing the large influence that building-to-land value ratio had in determining suitability scores. Although vacant lots received the mean building-to-land score, their vacancy leads them to fall in the lowest building-to-land quintile and thus appear red on both maps.

However, Figure 3 also includes many red parcels that appear orange or yellow in Figure 10. While the red parcels in Figure 10 are mostly concentrated in several areas, they are distributed more evenly in Figure 3. This difference in distribution reflects the influence of other attributes in the linear combination. Some parcels have relatively low building-to-land value ratios, but still too high to be a part of the lowest quintile. Nonetheless, they have other attributes that make them more suitable for redevelopment (in particular, large parcel areas made the difference for many). A parcel's building-to-land value ratio is an excellent measure of its fulfillment of market potential, but it does not take into account other considerations, such as ease of redevelopment or community goals.

Occupancy status

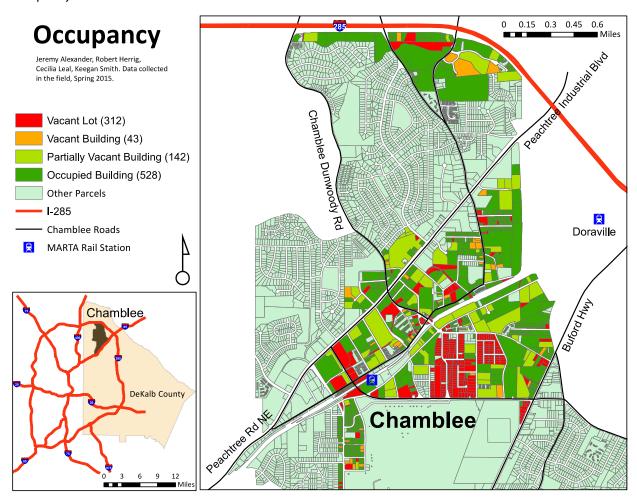


Figure 11: Occupancy Status for Surveyed Parcels (Source: Authors)

Figure 11 shows the occupancies of surveyed parcels, with four possible values. Vacant lots appear red, while occupied buildings appear green. In comparison with Figure 3's suitability scores, similarities and differences are again noticeable. Many parcels appearing red in Figure 11 again appear red in Figure 3, showing occupancy's influence on suitability scores. However, there are also many parcels that appear green or light green in Figure 11 and orange or red in Figure 3. Other parcels that appear red in Figure 11 are orange or yellow in Figure 3. Such parcels that are occupied but otherwise highly suitable for redevelopment are hidden in Figure 11. Like the building-to-land value ratio, occupancy is an important component of suitability, but it is not everything.

By comparing the suitability scores of Figure 3 with the single-attribute maps of Figure 10 and Figure 11, one can see that examining parcels in terms of individual attributes does yield important conclusions for targeting redevelopment. However, a single measure is inherently narrow and leaves out other significant dimensions of suitability. By providing a more comprehensive measure of suitability, linear combination does add enough value to justify its additional complexity.

PROJECT LIMITATIONS

Limitations of analysis

Evaluating the limits of this research could shed light on ways to improve methods in future studies of targeting vacant commercial and industrial properties for revitalization. Limitations made it necessary to evaluate the efficacy of this research method and its applicability to the broader spectrum of urban revitalization policy.

Researchers adapted their parcel and hot spot prioritization method, targeting parcels most suitable for municipal tracking and redevelopment purposes, using measures selected from the research and interview process. Researchers chose the value of the land, its relationship to the value of a present building, the vacancy condition of the building, condition of blight, parcel size, and distance from transit stations to conduct a multi-criteria suitability analysis. Researchers utilized a method of analysis that paralleled analyses of soil, land use, and other vacant property suitability studies, yet the combination and analysis of the selected criteria were unique to this study. Thus, this research's method may be one of many ways to effectively identify the best-suited sites for a municipality to focus its efforts and resources on revitalization.

The criteria, the weighting of each category, and the logical combination of scores used to perform the analysis in this study were designed to express the importance of one criterion over another. The relative value of attributes, as discovered in the research and interview process, informed the weight of criteria in this study. Values on specific attributes differ from one urbanized suburban place to another, and the method employed here reflected the desired future development patterns in Chamblee.

Different valuations have informed combinations of criteria for analyses that have effectively targeted vacant sites in other cities in the past. Many variables factor into the redevelopment suitability of a site, as economic and regulatory frameworks and physical environments differ across cities. The multicriteria research method used in this study made assumptions about the relative importance of criteria; a single criterion alone may be uninformative in accomplishing similar goals.

Due to accessibility and time constraints, researchers also chose not to seek information that could be useful in vacant property prioritization methods, such as water and sewer availability, historic resource potential, or age of structure. Other helpful information that researchers did not pursue due to limitations in information and time included environmental features, such as streams, lakes, floodplains, topography, stormwater retention, and brownfields. Future prioritization studies may include these criteria in their analyses.

Limitations of data collection

The data and its collection proved a limitation to the research, as well. For one, the DeKalb County Tax Assessor's data set provided incomplete information. Some parcels exhibited more data than others. This may be due to entry errors on the part of the DeKalb County Tax Assessor's office, or an information gap between property owners and the government. The data exhibited inconsistencies, too. In some cases, zoning codes from the county's tax data differed from the City of Chamblee's zoning codes, building values were missing where the window survey confirmed a building, and due to split parcels or unclear boundaries, some land values were zero. Through a process of data cleaning, however, the researchers omitted 134 of the 1160 parcels that exhibited any of these errors from the final analysis.

Finally, the window survey itself presented researchers with limitations to the research. In the field, it was fairly simple to determine the presence of a building or of an empty lot, yet it was not always straightforward determining parcel boundaries, vacancy status, and blight. Data entry errors likely occurred when recording the field survey for this reason. However, the data collected by researchers, the data derived from other sources, and the quantitative assessment resulting from the combination of these data was conducted with these limitations in mind.

VII. CONCLUSIONS

The multi-criteria suitability analysis and hot spot analysis used in this study can provide valuable information for cities and planning organizations to begin the process of recycling underutilized properties in built-out urban areas. Researchers accomplished three main objectives in this study.

First, researchers adapted a land suitability analysis method to identify parcels well suited for redevelopment in an urban community with obsolete industrial and commercial properties. Researchers structured the method to work within the framework of the City of Chamblee, incorporating their policy goals for commercial and industrial zones, and including key concepts from literature and professional advisors.

Second, researchers collected accurate field data on 1026 parcels, roughly one sixth of all parcels in the City of Chamblee, and thus began the process of updating their vacant land inventory. This phase helped move Chamblee forward along on the vacant property revitalization cycle. Researchers then analyzed the data through the adapted method to make recommendations for the city.

Lastly, researchers evaluated the adapted method with regard to its value to urban policy and development decision-makers.

The lessons researchers take from this study are many:

- Information gaps exist in land use planning
- Land inventories and data collecting are economical ways to fill this gap in order to make betterinformed decisions
- Data can be analyzed at an increasing level of complexity to form an index of priorities
- The method researchers used is flexible and layers of information can be added; and this method, while not perfect, does work to identify suitable parcels for redevelopment across distinct character areas.

Understanding that not all of the recommended parcels and parcel clusters will actually be developable, the method used here should work well with consistent and accurate tax assessor data, city zoning information, and ArcGIS. Future studies should determine how researchers may refine this method of redevelopment suitability analysis and incorporate more information on factors that play a role, such as environmental constraints. They might also study the method's applicability to specific policy tools. Would this method work better to win tax Opportunity Zones or tax abatements for private developers? Does this method speed up the process of the vacant property revitalization cycle? How can local governments efficiently access and analyze the data they need to do so? All would be useful for local governments to understand and represent meaningful directions for future research.

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IX. APPENDIX

Interview Questions for planning and economic development professionals:

- 1. What is the overall climate regarding development in (locality)?
- 2. What types of development are currently planned/being planned for the future?
- 3. Are there any TADs, CIDs, or opportunity zones in (city)? How about other economic development tools?
- 4. Does (city) have any specific vacant land use strategy?
- 5. What kind of current development exists at (amenities shared with Chamblee: Buford Highway, Peachtree Road, PDK Airport, 285)?
- 6. Do you foresee any cooperation with Chamblee on development projects?
- 7. Do you foresee any conflict with Chamblee on development projects?
- 8. Anything else pertinent to this study?

Interview Questions for development and real estate professionals:

- 1. What do current development trends look like in Chamblee?
- 2. What do you expect to be happening in the future?
- 3. Do they consider one type of development to be more important than another?
- 4. What characteristics do you look for when determining what sites to develop?
- 5. Is this different between vacant sites, and already developed sites?
- 6. Do they think Chamblee will be able to achieve its goal of being dense walkable urban place? If so, when?
- 7. Does your company (if developer) /client (if real estate) require incentives to develop in Chamblee/north Metro Atlanta? If yes, do they differ between development types?

Score Distribution

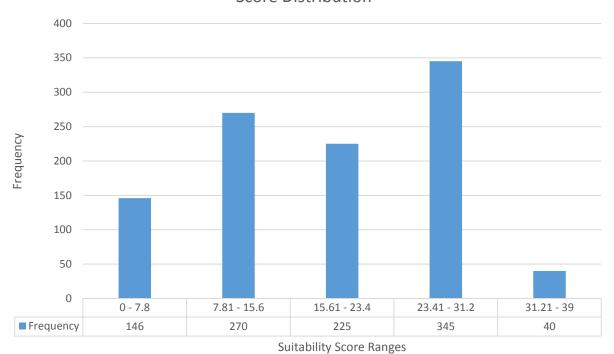


Figure 12: Suitability Score Distribution (Source: Authors)

Table 8: Suitability Score Descriptive Statistics (Source: Authors)

Mean	17.92276
Standard Error	0.278559
Median	19
Mode	25.79921
Standard Deviation	8.922593
Sample Variance	79.61267
Kurtosis	-1.08594
Skewness	-0.14634
Range	39
Minimum	0
Maximum	39
Sum	18388.76
Count	1026
Confidence Level (95.0%)	0.546611

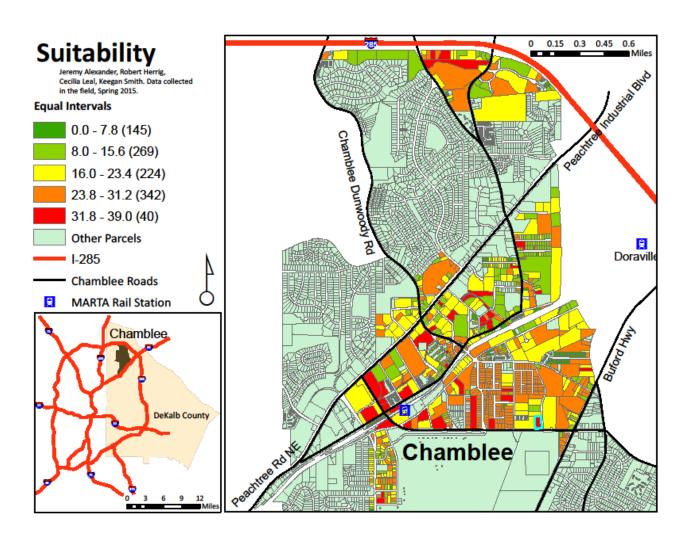


Figure 13: Suitability Scores for Surveyed Parcels, Equal Interval Distribution (Source: Authors)

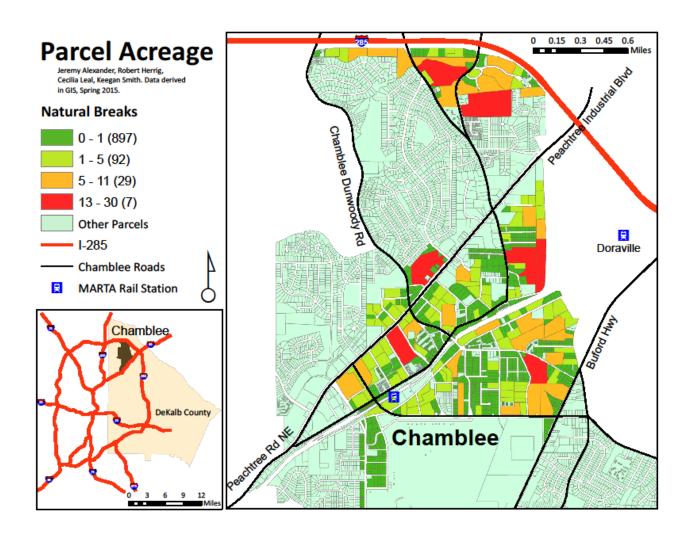


Figure 14: Parcel Areas for Surveyed Parcels (Source: Authors)

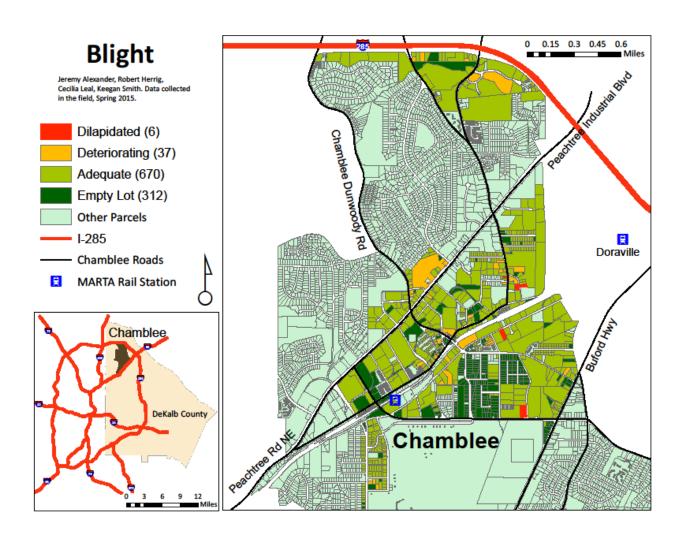


Figure 15: Blight Values for Surveyed Parcels (Source: Authors)

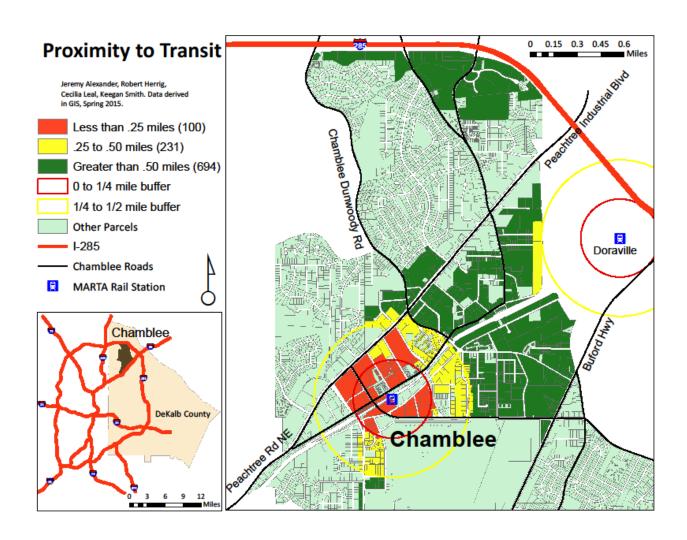


Figure 16: Proximity to Transit for Surveyed Parcels (Source: Authors)

Table 9: Top 25 Parcels by Suitability Score (Source: Authors)

Parcel ID	Character Area	Building/Land Value Ratio	Occupancy	Occupancy Value	Blight	Suitability Score
18 298 05 028	9 International Village	0.2195121	Vacant Building	3	Dilapidated	39
18 344 05 010	1 Perimeter Commercial Mix	0.1363636	Vacant Building	3	Deterioratin g	37
18 299 03 006	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 299 03 010	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 299 04 001	9 International Village	0	Vacant Lot	4	NA	36.799214 0
18 299 05 004	9 International Village	0	Vacant Lot	4	NA	36.799214 0
18 299 13 001	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 299 13 009	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 299 13 011	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 300 03 007	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 300 04 001	8 Mid City	0	Vacant Lot	4	NA	36.799214 0
18 309 07 010	4 GM Village	0.0544692	Vacant Building	3	Dilapidated	35
18 298 08 001	9 International Village	0	Vacant Lot	4	NA	34.799214 0
18 299 11 008	6 City Center	0	Vacant Lot	4	NA	34.799214 0
18 299 09 002	9 International Village	0.2652889	Partially Vacant Building	2	Deterioratin g	34
18 299 16 006	6 City Center	0.0713290	Vacant Building	3	Deterioratin g	34
18 279 05 010	20 Clairmont Corridor	0.1627906	Vacant Building	3	Deterioratin g	33
18 299 04 004	9 International Village	0.0691675	Partially Vacant Building	2	Adequate	33
18 299 14 001	8 Mid City	0.2241315	Partially Vacant Building	2	Adequate	33
18 308 15 021	5 Central Gateway	0.2371980	Vacant Building	3	Deterioratin g	33
18 309 02 035	4 GM Village	0.1059782	Vacant Building	3	Deterioratin g	33
18 309 11 070	6 City Center	0.2061463	Vacant Building	3	Deterioratin g	33
18 299 14 014	8 Mid City	0	Vacant Lot	4	NA	32.799214 0

18 299 12 012	6 City Center	0.2972802	Vacant Building	3	Deterioratin g	32
18 279 05 011	20 Clairmont Corridor	0	Vacant Lot	4	NA	31.799214 0

Table 10: Parcels within Catalina Drive Hot Spot (Source: Authors)

Parcel ID	Clas s	Presence of Building	Occupanc y Status	Blight	Distance to MARTA	Building/La nd Value Ratio	Acreage (ac.)
18 298 11 014	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.386406
18 298 04 021	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.127246
18 299 07 011	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.22383
18 298 04 066	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	11.16667	0.258264
18 298 08 013	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273187
18 298 04 011	13	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000012	0.618921
18 298 04 024	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.197947
18 298 04 055	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.28	0.258285
18 298 04 003	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000208	0.411527
18 298 08 026	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.334199
18 298 04 030	E1	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000091	0.209388
18 298 08 002	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.218211
18 298 08 016	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273189
18 298 08 006	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.351242
18 298 04 108	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.025952
18 298 04 022	E1	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.152225
18 298 08 007	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.351239
18 298 11 025	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000017	0.36158
18 298 04 010	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.00002	0.619842
18 298 04 004	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000208	0.408906
18 298 04 027	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000017	0.308096
18 298 04 074	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000003	0.573091
18 298 08 001	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000002	5.130793

18 298 04	62	Empty Vacant	\\\t	NI A	25 +- 50		0.424542
102	C3	Lot	Vacant	NA	.25 to .50 miles	0	0.121542
18 298 04 107	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.05062
18 298 11 011	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.43358	0.413226
18 298 04 026	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.246715
18 299 07 012	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.223831
18 298 04 103	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.217747
18 298 04 025	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.002	0.222055
18 298 04 040	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	3.335484	0.259859
18 298 11 016	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.28371
18 298 04 059	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	17.26667	0.488273
18 298 04 020	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.104737
18 298 08 019	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.702984
18 298 04 106	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.074725
18 298 11 030	C3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000019	0.301368
18 298 04 065	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.258268
18 298 04 019	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.080631
18 298 11 010	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.361572
18 298 04 028	E1	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	3.083871	0.311827
18 298 08 012	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.626631	0.273187
18 298 04 056	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.356	0.258296
18 299 07 013	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.223831
18 298 04 006	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000208	0.339017
18 299 07 015	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.22383
18 298 04 029	E1	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000091	0.23523
18 298 08 025	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.383169

	[mntu//acant			Creater than FO		
R3	Lot	Vacant	NA	miles	0.000017	0.349555
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.622	0.605875
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	11.15	0.262881
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.22383
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.361573
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	10.23333	0.258266
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000003	0.61788
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	9.666667	0.316111
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.348332
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.174641
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.353217
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273184
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273185
С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000017	0.361594
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.352571
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.351929
	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.361563
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.425144
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.303888
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273188
	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.518938
С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.000051	0.273187
C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.603704	0.306902
E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000208	0.410116
C3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.361572
	E1	E1 Empty Vacant Lot E1 Empty Vacant Lot C3 Empty Vacant Lot E1 Empty Vacant Lot E1 Empty Vacant Lot E1 Empty Vacant Lot E1 Empty Vacant Lot C3 Empty Vacant Lot Empty Vac	E1 Empty Vacant Lot Vacant E1 Empty Vacant Lot Vacant C3 Empty Vacant Vacant C3 Empty Vacant Vacant E1 Empty Vacant Vacant C3 Empty Vacant Lot Vacant C3 Empty Vacant Lot Vacant C3 Empty Vacant Lot Vacant Empty Vacant Lot Vacant C3 Empty Vacant Lot Vacant	E1 Empty Vacant Lot Vacant NA E1 Empty Vacant Lot Vacant NA C3 Empty Vacant Vacant NA C3 Empty Vacant Vacant NA E1 Empty Vacant Vacant NA C3 Empty Vacant Vacant NA Empty Vacant Vacant NA	E1 Empty Vacant Lot Vacant NA miles Greater than .50 miles Creater t	Empty Vacant Lot Vacant NA Miles Greater than .50 Miles Miles

18 298 08 011	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273186
18 298 04 057	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.343367
18 298 11 031	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000018	0.325464
18 298 04 101	C3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.14432
18 298 04 105	R3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.098026
18 298 04 058	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	14.28333	0.367929
18 298 04 018	R3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0	0.054923
18 298 11 029	C3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000017	0.276482
18 298 04 053	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.688	0.258282
18 298 04 052	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.408	0.258283
18 298 08 014	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.273187
18 298 08 004	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0.00001	0.273188
18 298 04 072	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	10.23333	0.290572
18 298 11 028	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000022	0.228143
18 298 04 054	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.384	0.258282
18 298 08 027	С3	Empty Vacant Lot	Vacant	NA	.25 to .50 miles	0	0.324108
18 298 04 017	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000145	1.595195
18 299 09 008	С3	Building	Occupied	Adequat e	.25 to .50 miles	0.12688	5.269065

Note: Data regarding property owners and property values was omitted from this table in order to comply with confidentiality requests from the DeKalb County Tax Assessor's Office

Table 11: Parcels within Savoy Road Hot Spot (Source: Authors)

Parcel ID	Class	Presence of Building	Occupancy Status	Blight	Distance to MARTA	Building/Land Value Ratio	Acreag e (ac.)
18 344 05 009	С3	Building	Occupied	Adequate	Greater than .50 miles	0.104363	0.8812
18 344 05 010	С3	Building	Vacant	Deterioratin g	Greater than .50 miles	0.136364	1.0613
18 344 05 002	E1	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000002	2.5596
18 333 02 023	C4	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000015	9.5655
18 344 05 008	С3	Building	Occupied	Adequate	Greater than .50 miles	0.136364	0.9833

Note: Data regarding property owners and property values was omitted from this table in order to comply with confidentiality requests from the DeKalb County Tax Assessor's Office

Table 12: Parcels within Chamblee-Tucker Road and Peachtree Blvd. Hot Spot (Source: Authors)

Parcel ID	Class	Presence of Building	Occupancy Status	Blight	Distance to MARTA	Building/Lan d Value Ratio	Acreage (ac.)
18 299 03 006	E1	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.000021	1.05621 3
18 299 13 009	E1	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.000018	1.35212 4
18 299 13 005	С3	Building	Occupied	Adequa te	Less than .25 miles	5.461793	3.89285 5
18 299 13 011	E1	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.00001	2.05986 7
18 300 04 001	C4	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.000001	6.15824 9
18 299 13 001	E1	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.000027	1.01851 8
18 299 03 011	E1	Empty Vacant Lot	Vacant	NA	Less than .25 miles	0.000064	0.17833 7

Note: Data regarding property owners and property values was omitted from this table in order to comply with confidentiality requests from the DeKalb County Tax Assessor's Office

Table 13: Parcels within Broad Street and Irvindale Drive Hot Spot (Source: Authors)

Parcel ID	Class	Presence of Building	Occupancy Status	Blight	Distance to MARTA	Building/Land Value Ratio	Acreag e
18 309 11 005	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000002	1.4833 74
18 309 11 075	13	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000007	0.5773 43
18 309 11 077	13	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000006	1.0685
18 309 11 071	С3	Empty Vacant Lot	Vacant	NA	Greater than .50 miles	0.000004	0.8726 58

Note: Data regarding property owners and property values was omitted from this table in order to comply with confidentiality requests from the DeKalb County Tax Assessor's Office

Table 14: Parcels within Clairmont Road and 6th Street Hot Spot (Source: Authors)

Parcel ID	Clas s	Presence of Building	Occupanc y Status	Blight	Distance to MARTA	Building/Land Value Ratio	Acreag e (ac.)
18 279 05	C3	Building	Vacant	Deteriorating	Greater than	0.162791	0.44193
010	CS	building	Vacaiii	Deteriorating	.50 miles	0.102791	3
18 279 05	R3	Building	Vacant	Deteriorating	Greater than	0.355019	0.37894
002	КЭ	building	Vacaiii	Deteriorating	.50 miles	0.555019	7
18 279 05	C3	Empty Vacant	Vacant	NA	Greater than	0.000003	1.11645
011	C3	Lot	vacall	INA	.50 miles	0.000003	4

Note: Data regarding property owners and property values was omitted from this table in order to comply with confidentiality requests from the DeKalb County Tax Assessor's Office